

**Revisions to
Total Maximum Daily Loads for
Nutrient and Low Dissolved Oxygen
Under High-Flow Conditions
Christina River Basin,
Pennsylvania, Delaware, and Maryland**

September 2006

U.S. Environmental Protection Agency
Region 3
1650 Arch Street
Philadelphia, Pennsylvania

Errata

4/30/2007

The 2005 and 2006 Total Maximum Daily Load of Nutrients and Low Dissolved Oxygen Under High-Flow Conditions in the Christina River Basin, Pennsylvania, Delaware, and Maryland, established April 8, 2005, and revised September 26, 2006, by EPA was not intended to modify wasteload allocations (WLAs) established in the Total Maximum Daily Load of Nutrients and Dissolved Oxygen Under Low-Flow Conditions in the Christina River Basin, Pennsylvania, Delaware, and Maryland, to the two WWTPs discharging to the West Branch Christina River in Maryland. The two WWTPs are:

Highlands WWTP MD0065145
Meadowview WWTP MD0022641

The corrected portions of summary tables are shown in italics below.

Total nitrogen and total phosphorus allocations at MD-DE state line

Location	Baseline Load (kg/day)	Maryland Allocation (kg/day)	Reduction
Total Nitrogen			
Christina River West Branch (MD-DE Line)	96.5	26.2	72.8%
Total Phosphorus			
Christina River West Branch (MD-DE Line)	3.8	2.0	47.5%

TMDL summary for Christina River Watershed

Subbasin	Baseline Loads (kg/day)			Allocations (kg/day)					Percent Reduction
	PS	NPS	Total	WLA	MS4 WLA	LA	MOS	TMDL	
Total Nitrogen									
C01	57.781	53.686	110.467	57.781	2.634	7.566	0.537	67.718	38.9%
C02	0.000	78.387	78.387	0.000	48.752	25.715	3.919	78.387	0.0%
C03	0.000	20.367	20.367	0.000	19.349	0.000	1.018	20.367	0.0%
C04	0.000	17.290	17.290	0.000	16.426	0.000	0.865	17.290	0.0%
C05	2.606	12.006	14.612	0.618	11.406	0.000	0.600	12.624	13.6%
C06	0.000	42.959	42.959	0.000	38.507	2.304	2.148	42.959	0.0%
C07	0.000	24.946	24.946	0.000	23.699	0.000	1.247	24.946	0.0%
C08	0.000	41.127	41.127	0.000	39.071	0.000	2.056	41.127	0.0%
C09	5.931	72.021	77.952	1.631	68.420	0.000	3.601	73.652	5.5%
Becks Pond	0.000	38.683	38.683	0.000	34.954	1.795	1.934	38.683	0.0%
Sunset Pond	0.000	22.557	22.557	0.000	21.429	0.000	1.128	22.557	0.0%

WLA summary for Christina River Watershed

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Executive Summary

Revisions to Nutrient and Low dissolved Oxygen TMDL Under High-Flow Conditions for Christina River Watershed Pennsylvania, Delaware, and Maryland

The Clean Water Act (CWA) requires a Total Maximum Daily Load (TMDL) be developed for those waterbodies identified as impaired by the states where technology-based and other controls will not provide for attainment of water quality standards. A TMDL is a determination of the amount of a pollutant from point, nonpoint and natural background sources, including a margin of safety (MOS), which may be discharged to a water quality-limited waterbody without violating water quality standards.

TMDLs are defined as the summation of the point source WLAs plus the summation of the nonpoint source LAs plus a MOS and are often shown as:

$$\text{TMDL} = \sum \text{WLAs} + \sum \text{LAs} + \text{MOS}$$

The TMDL is a written plan and analysis established to ensure that a waterbody will attain and maintain water quality standards. The TMDL is a scientifically-based strategy that considers current and foreseeable conditions, the best available data, and accounts for uncertainty with the inclusion of a MOS value.

The TMDLs are to achieve and maintain the States' existing water quality standards and must meet the following eight regulatory requirements pursuant to 40 CFR Part 130.

1. The TMDLs are designed to implement the applicable water quality standards.
2. The TMDLs include a total allowable load as well as individual Wasteload Allocations (WLAs) and Load Allocations (LAs).
3. The TMDLs consider the impacts of background pollutant contributions.
4. The TMDLs consider critical environmental conditions.
5. The TMDLs consider seasonal environmental variations.
6. The TMDLs include a MOS.
7. There is reasonable assurance that the proposed TMDLs can be met.
8. The TMDLs have been subject to public participation.

As interstate TMDLs, both Pennsylvania and Maryland have the responsibility of meeting downstream Delaware's water quality standards.

The Pennsylvania Department of Environment Protection (PADEP) identified waterbodies within Pennsylvania's portion of the Christina River Watershed as impaired by nutrients, organic enrichment, or low dissolved oxygen, which are addressed in this TMDL Report. The Delaware Department of Natural Resources and Environmental Control (DNREC) identified waterbodies

within Delaware's portion of the Christina River Basin as impaired by nutrients or low dissolved oxygen. Maryland's Department of the Environment (MDE) has not identified waterbodies within the Christina River Watershed as impaired.

Both PADEP and DNREC have designated the primary contact recreation (swimming) and protection of aquatic life (fishing) uses for waterbodies in the Christina River Basin. Applicable use designations and dissolved oxygen (DO) criteria are shown in Table 1-5 and a summary of nutrient criteria is shown in Table 1-6.

A customized modeling framework was developed to support determination of bacteria and sediment TMDLs for the Christina River Basin. The modeling framework used in this study consisted of three major components: (1) a watershed loading model (HSPF) developed for each of the four primary subwatersheds in the Christina River Basin by the U.S. Geological Survey (Senior and Koerkle, 2003a, 2003b, 2003c, 2003d), (2) a Combined Sewer Overflow flow model (XP-SWMM) developed by the City of Wilmington, and (3) a hydrodynamic model developed using the computational framework of the Environmental Fluid Dynamics Code (EFDC) (Hamrick, 1992). Development of inputs for these models involved the analyses of historical water quality and streamflow data to estimate point and nonpoint sources of nutrients.

Total nitrogen and total phosphorus allocations at PA-DE state line

Location	Baseline Load (kg/day)	Pennsylvania Allocation (kg/day)	Reduction
Total Nitrogen			
Brandywine Creek (at PA-DE Line)	6849.8	3663.8	46.5%
White Clay Creek (at PA-DE Line)	956.2	685.0	28.4%
Red Clay Creek (at PA-DE Line)	466.7	320.4	31.3%
Burroughs Run (at PA-DE Line)	43.4	43.4	0.0%
Total Phosphorus			
Brandywine Creek (at PA-DE Line)	423.8	250.8	40.8%
White Clay Creek (at PA-DE Line)	110.6	65.9	40.4%
Red Clay Creek (at PA-DE Line)	62.8	17.2	72.6%
Burroughs Run (at PA-DE Line)	0.8	0.8	0.0%

Total nitrogen and total phosphorus allocations at MD-DE state line

Location	Baseline Load (kg/day)	Maryland Allocation (kg/day)	Reduction
Total Nitrogen			
Christina River West Branch (MD-DE Line)	68.7	26.2	61.9%
Total Phosphorus			
Christina River West Branch (MD-DE Line)	3.8	2.0	47.5%

TMDL summary for Brandywine Creek Watershed

Subbasin	Baseline Loads (kg/day)			Allocations (kg/day)					Percent Reduction
	PS	NPS	Total	WLA	MS4 WLA	LA	MOS	TMDL	
Total Nitrogen									
B01	31.559	362.174	393.733	31.559	170.416	36.023	10.865	248.863	36.8%
B02	0.000	114.369	114.369	0.000	65.191	0.000	3.431	68.622	40.0%
B03	2.167	89.226	91.393	2.167	67.779	8.510	4.015	82.471	9.8%
B04	0.000	5.369	5.369	0.000	5.101	0.000	0.268	5.369	0.0%
B05	558.690	77.512	636.202	558.690	34.049	10.133	2.325	605.197	4.9%
B06	0.156	123.362	123.518	0.156	80.940	1.095	4.318	86.509	30.0%
B09	0.078	252.455	252.533	0.078	97.148	99.515	10.351	207.092	18.0%
B10	3.721	252.455	256.176	3.721	179.343	17.320	10.351	210.735	17.7%
B17	1.013	83.890	84.903	1.013	43.626	30.491	3.901	79.031	6.9%
B18	0.000	103.795	103.795	0.000	98.605	0.000	5.190	103.795	0.0%
B19	0.946	64.711	65.657	0.946	61.475	0.000	3.236	65.657	0.0%
B32	0.000	29.001	29.001	0.000	24.796	0.000	1.305	26.101	10.0%
B33	1.799	95.092	96.891	1.799	80.541	0.763	4.279	87.382	9.8%
B34	11.443	33.958	45.401	4.107	32.260	0.000	1.698	38.065	16.2%
Total Phosphorus									
B01	6.360	6.920	13.280	6.360	3.256	0.688	0.208	10.512	20.8%
B02	0.000	2.185	2.185	0.000	1.245	0.000	0.066	1.311	40.0%
B03	0.540	16.229	16.769	0.540	12.328	1.548	0.730	15.146	9.7%
B04	0.000	0.988	0.988	0.000	0.939	0.000	0.049	0.988	0.0%
B05	35.524	14.615	50.139	35.524	6.420	1.911	0.438	44.293	11.7%
B06	0.040	25.254	25.294	0.040	16.570	0.224	0.884	17.718	30.0%
B09	0.020	3.849	3.869	0.020	1.481	1.517	0.158	3.176	17.9%
B10	0.429	3.848	4.277	0.429	2.734	0.264	0.158	3.585	16.2%
B17	0.221	7.508	7.729	0.221	3.904	2.729	0.349	7.203	6.8%
B18	0.000	8.586	8.586	0.000	8.157	0.000	0.429	8.586	0.0%
B19	0.189	2.376	2.565	0.189	2.257	0.000	0.119	2.565	0.0%
B32	0.000	2.147	2.147	0.000	1.836	0.000	0.097	1.933	10.0%
B33	0.115	1.729	1.844	0.115	1.465	0.014	0.078	1.672	9.3%
B34	1.966	2.843	4.809	0.730	2.701	0.000	0.142	3.573	25.7%

WLA summary for Brandywine Creek Watershed

Subbasin	NPDES	Flow mgd	Baseline Point Source Loads		WLA		Percent Reduction	
			TN kg/day	TP kg/day	TN kg/day	TP kg/day	TN	TP
B01	PA0036412	0.0550	2.682	0.559	2.682	0.559	0.0%	0.0%
B01	PA0044776	0.6000	28.799	5.781	28.799	5.781	0.0%	0.0%
B01	PA0057339	0.0005	0.078	0.02	0.078	0.02	0.0%	0.0%
B03	PA0052728	0.0004	0.036	0.015	0.036	0.015	0.0%	0.0%
B03	PA0055697	0.0490	2.131	0.525	2.131	0.525	0.0%	0.0%
B05	PA0011568-001	0.6400	14.045	1.029	14.045	1.029	0.0%	0.0%
B05	PA0011568-016	0.5045	23.868	0.811	23.868	0.811	0.0%	0.0%
B05	PA0026859	3.8500	466.237	29.508	466.237	29.508	0.0%	0.0%
B05	PA0036897	0.3900	54.54	4.176	54.54	4.176	0.0%	0.0%
B06	PA0053228	0.0005	0.078	0.02	0.078	0.02	0.0%	0.0%
B06	PA0053236	0.0005	0.078	0.02	0.078	0.02	0.0%	0.0%
B09	PA0054691	0.0005	0.078	0.02	0.078	0.02	0.0%	0.0%
B10	PA0050458	0.0351	1.724	0.188	1.724	0.188	0.0%	0.0%

Subbasin	NPDES	Flow mgd	Baseline Point Source Loads		WLA		Percent Reduction	
			TN kg/day	TP kg/day	TN kg/day	TP kg/day	TN	TP
B10	PA0050547	0.0375	1.841	0.201	1.841	0.201	0.0%	0.0%
B10	PA0055492	0.0005	0.078	0.02	0.078	0.02	0.0%	0.0%
B10	PA0057827	0.0050	0.078	0.02	0.078	0.02	0.0%	0.0%
B17	PA0053082	0.0206	1.013	0.221	1.013	0.221	0.0%	0.0%
B19	DE0021768	0.0250	0.947	0.189	0.947	0.189	0.0%	0.0%
B33	PA0012416	0.1400	1.643	0.075	1.643	0.075	0.0%	0.0%
B33	PA0052990	0.0005	0.078	0.02	0.078	0.02	0.0%	0.0%
B33	PA0056073	0.0005	0.078	0.02	0.078	0.02	0.0%	0.0%
B34	(DE CSO)						See Table 4-11	

TMDL summary for Red Clay Creek Watershed

Subbasin	Baseline Loads (kg/day)			Allocations (kg/day)				Percent Reduction	
	PS	NPS	Total	WLA	MS4 WLA	LA	MOS		
Total Nitrogen									
R01	3.677	126.926	130.603	3.677	54.709	5.581	3.173	67.140	48.6%
R02	49.825	104.678	154.503	49.825	49.722	0.000	2.617	102.164	33.9%
R03	6.807	120.151	126.958	6.807	57.071	0.000	3.004	66.882	47.3%
R04	2.197	39.984	42.181	2.197	18.992	0.000	1.000	22.189	47.4%
R05	0.568	34.713	35.281	0.568	16.489	0.000	0.868	17.925	49.2%
R06	0.078	67.015	67.093	0.078	63.664	0.000	3.351	67.093	0.0%
R07	0.000	3.012	3.012	0.000	2.861	0.000	0.151	3.012	0.0%
R08	0.318	23.882	24.200	0.318	22.688	0.000	1.194	24.200	0.0%
R09	0.000	7.346	7.346	0.000	6.979	0.000	0.367	7.346	0.0%
Total Phosphorus									
R01	0.914	2.277	3.191	0.914	0.982	0.100	0.057	2.053	35.7%
R02	7.506	45.473	52.979	7.506	4.320	0.000	0.227	12.053	77.2%
R03	1.606	2.845	4.451	1.606	1.352	0.000	0.071	3.029	31.9%
R04	1.699	6.407	8.106	1.699	1.887	0.000	0.099	3.685	54.5%
R05	0.114	4.249	4.363	0.114	4.037	0.000	0.212	4.363	0.0%
R06	0.020	1.269	1.289	0.020	1.206	0.000	0.063	1.289	0.0%
R07	0.000	0.424	0.424	0.000	0.403	0.000	0.021	0.424	0.0%
R08	0.133	1.383	1.516	0.133	1.314	0.000	0.069	1.516	0.0%
R09	0.000	0.360	0.360	0.000	0.342	0.000	0.018	0.360	0.0%

WLA summary for Red Clay Creek Watershed

Subbasin	NPDES	Flow mgd	Baseline Point Source Loads		WLA		Percent Reduction	
			TN Kg/day	TP Kg/day	TN Kg/day	TP Kg/day	TN	TP
R01	PA0050679	0.2500	0.321	0.134	0.321	0.134	0.0%	0.0%
R01	PA0057720-001	0.0720	3.240	0.732	3.240	0.732	0.0%	0.0%
R01	PA0057720-002	0.0900	0.116	0.048	0.116	0.048	0.0%	0.0%
R02	PA0024058	1.1000	49.825	7.506	49.825	7.506	0.0%	0.0%
R03	PA0055107	0.1500	6.807	1.606	6.807	1.606	0.0%	0.0%
R04	DE0000451	2.1700	1.972	1.643	1.972	1.643	0.0%	0.0%
R04	DE0050067	0.0015	0.225	0.056	0.225	0.056	0.0%	0.0%
R05	DE0021709	0.0150	0.568	0.114	0.568	0.114	0.0%	0.0%
R06	PA0055425	0.0005	0.078	0.020	0.078	0.020	0.0%	0.0%
R08	DE0000230	0.3500	0.318	0.133	0.318	0.133	0.0%	0.0%

TMDL summary for White Clay Creek Watershed

Subbasin	Baseline Loads (kg/day)			Allocations (kg/day)					Percent Reduction
	PS	NPS	Total	WLA	MS4 WLA	LA	MOS	TMDL	
Total Nitrogen									
W01	0.981	157.038	158.019	0.981	74.593	0.000	3.926	79.500	49.7%
W02	15.503	133.766	149.269	15.503	47.807	9.378	3.010	75.697	49.3%
W03	0.000	87.269	87.269	0.000	41.453	0.000	2.182	43.635	50.0%
W04	0.000	83.361	83.361	0.000	38.121	1.476	2.084	41.681	50.0%
W06	59.718	168.665	228.383	59.718	50.433	29.683	4.217	144.051	36.9%
W07	8.868	29.463	38.331	8.868	13.994	0.000	0.737	23.599	38.4%
W08	1.164	129.466	130.630	1.164	61.496	0.000	3.237	65.897	49.6%
W09	0.113	79.504	79.617	0.113	37.764	0.000	1.988	39.865	49.9%
W10	0.000	32.949	32.949	0.000	15.651	0.000	0.824	16.475	50.0%
W11	0.000	39.714	39.714	0.000	37.728	0.000	1.986	39.714	0.0%
W12	0.027	52.612	52.639	0.027	49.981	0.000	2.631	52.639	0.0%
W13	0.000	12.866	12.866	0.000	12.223	0.000	0.643	12.866	0.0%
W14	0.000	13.572	13.572	0.000	12.893	0.000	0.679	13.572	0.0%
W15	0.000	34.796	34.796	0.000	33.056	0.000	1.740	34.796	0.0%
W16	0.000	39.019	39.019	0.000	37.068	0.000	1.951	39.019	0.0%
W17	0.000	84.250	84.250	0.000	80.038	0.000	4.213	84.250	0.0%
Total Phosphorus									
W01	0.214	1.921	2.135	0.214	0.821	0.000	0.043	1.078	49.5%
W02	2.676	1.418	4.094	2.676	0.507	0.100	0.032	3.315	19.0%
W03	0.000	16.736	16.736	0.000	7.155	0.000	0.377	7.532	55.0%
W04	0.000	1.170	1.170	0.000	0.482	0.019	0.026	0.527	55.0%
W06	6.493	2.203	8.696	6.493	0.330	0.194	0.028	7.044	19.0%
W07	0.105	1.890	1.995	0.105	0.808	0.000	0.043	0.955	52.1%
W08	0.084	59.994	60.078	0.084	15.958	0.000	0.840	16.882	71.9%
W09	0.046	15.519	15.565	0.046	6.635	0.000	0.349	7.030	54.8%
W10	0.000	4.907	4.907	0.000	2.098	0.000	0.110	2.208	55.0%
W11	0.000	5.474	5.474	0.000	5.200	0.000	0.274	5.474	0.0%
W12	0.011	4.122	4.133	0.011	3.916	0.000	0.206	4.133	0.0%
W13	0.000	1.074	1.074	0.000	1.020	0.000	0.054	1.074	0.0%
W14	0.000	0.637	0.637	0.000	0.605	0.000	0.032	0.637	0.0%
W15	0.000	0.494	0.494	0.000	0.469	0.000	0.025	0.494	0.0%
W16	0.000	0.831	0.831	0.000	0.789	0.000	0.042	0.831	0.0%
W17	0.000	2.152	2.152	0.000	2.044	0.000	0.108	2.152	0.0%

WLA summary for White Clay Creek Watershed

Subbasin	NPDES	Flow mgd	Baseline Point Source Loads		WLA		Percent Reduction	
			TN kg/day	TP kg/day	TN kg/day	TP kg/day	TN	TP
W01	PA0053783	0.0200	0.981	0.214	0.981	0.214	0.0%	0.0%
W02	PA0024066	0.2500	15.503	2.676	15.503	2.676	0.0%	0.0%
W06	PA0025488	0.3000	59.038	6.425	59.038	6.425	0.0%	0.0%
W06	PA0040436	0.0090	0.680	0.068	0.680	0.068	0.0%	0.0%
W07	PA0056898	0.0650	8.868	0.105	8.868	0.105	0.0%	0.0%
W08	PA0057029	0.1440	1.164	0.084	1.164	0.084	0.0%	0.0%
W09	PA0052451	0.0012	0.113	0.046	0.113	0.046	0.0%	0.0%
W12	DE0000191	0.0300	0.027	0.011	0.027	0.011	0.0%	0.0%

TMDL summary for Christina River Watershed

Subbasin	Baseline Loads (kg/day)			Allocations (kg/day)				Percent Reduction	
	PS	NPS	Total	WLA	MS4 WLA	LA	MOS		
Total Nitrogen									
C01	28.965	53.686	82.651	28.965	2.634	7.566	0.537	39.702	52.0%
C02	0.000	78.387	78.387	0.000	48.752	25.715	3.919	78.387	0.0%
C03	0.000	20.367	20.367	0.000	19.349	0.000	1.018	20.367	0.0%
C04	0.000	17.290	17.290	0.000	16.426	0.000	0.865	17.290	0.0%
C05	2.606	12.006	14.612	0.618	11.406	0.000	0.600	12.624	13.6%
C06	0.000	42.959	42.959	0.000	38.507	2.304	2.148	42.959	0.0%
C07	0.000	24.946	24.946	0.000	23.699	0.000	1.247	24.946	0.0%
C08	0.000	41.127	41.127	0.000	39.071	0.000	2.056	41.127	0.0%
C09	5.931	72.021	77.952	1.631	68.420	0.000	3.601	73.652	5.5%
Becks Pond	0.000	38.683	38.683	0.000	34.954	1.795	1.934	38.683	0.0%
Sunset Pond	0.000	22.557	22.557	0.000	21.429	0.000	1.128	22.557	0.0%
Total Phosphorus									
C01	2.839	1.334	4.173	2.839	0.065	0.188	0.013	3.106	25.6%
C02	0.000	1.584	1.584	0.000	0.985	0.520	0.079	1.584	0.0%
C03	0.000	2.610	2.610	0.000	2.480	0.000	0.131	2.610	0.0%
C04	0.000	0.438	0.438	0.000	0.416	0.000	0.022	0.438	0.0%
C05	0.441	0.826	1.267	0.104	0.785	0.000	0.041	0.930	26.6%
C06	0.000	1.211	1.211	0.000	1.085	0.065	0.061	1.211	0.0%
C07	0.000	1.000	1.000	0.000	0.950	0.000	0.050	1.000	0.0%
C08	0.000	4.202	4.202	0.000	3.992	0.000	0.210	4.202	0.0%
C09	1.003	6.688	7.691	0.276	6.354	0.000	0.334	6.964	9.5%
Becks Pond	0.000	1.090	1.090	0.000	0.985	0.051	0.055	1.090	0.0%
Sunset Pond	0.000	0.904	0.904	0.000	0.859	0.000	0.045	0.904	0.0%

WLA summary for Christina River Watershed

Subbasin	NPDES	Flow mgd	Baseline Point Source Loads		WLA		Percent Reduction	
			TN Kg/day	TP Kg/day	TN Kg/day	TP Kg/day	TN	TP
C01	MD0022641	0.7000	26.503	2.650	26.503	2.650	0.0%	0.0%
C01	MD0065145	0.0500	2.462	0.189	2.462	0.189	0.0%	0.0%
C05	(DE CSO)	See Baseline and WLA nitrogen and phosphorus loads for CSO discharges table						
C09	(DE CSO)	See Baseline and WLA nitrogen and phosphorus loads for CSO discharges table						

Neither the Pennsylvania nor the Delaware MS4 permits actually identify the extent of the systems. Since these systems have not yet been delineated, the TMDL includes nonpoint source loadings into the WLA portion of the TMDL. Once these delineations are available, the nonpoint source loadings can then be separated out of the WLAs and moved under the LA. It is anticipated that the State's storm water program will revise the WLA into the appropriate WLA and LA as part of the storm water permit reissuance. Note that the overall reductions in the TMDL will not change.

The non-MS4 point source permittee's allocations for five-day carbon biological oxygen demand, ammonia, and total phosphorus are not reduced from their permitted levels and are shown in Table 2-2.

Wilmington has combined sewers with combined sewer overflows (CSOs) discharging to Brandywine Creek, Christina River, and Little Mill Creek. The CSO allocations are shown in the following table.

Baseline and WLA nitrogen and phosphorus loads for CSO discharges

Location	CSO ID numbers	Baseline (kg/day)	WLA (kg/day)	Reduction
Total Nitrogen				
Little Mill Creek (C05)	27, 28, 29	2.606	0.618	76.3%
Christina River (C09)	5, 6, 7, 9a, 9c, 10, 11, 12, 13, 14, 15, 16, 17, 30	5.931	1.631	72.5%
Brandywine Cr. (B34)	3, 4a, 4b, 4c, 4d, 4e, 4f, 18, 19, 20, 21a, 21b, 21c, 22b, 22c, 23, 24, 25, 26, RR	11.443	4.107	64.1%
Total CSO load	-	19.980	6.356	68.2%
Total Phosphorus				
Little Mill Creek (C05)	27, 28, 29	0.441	0.104	76.4%
Christina River (C09)	5, 6, 7, 9a, 9c, 10, 11, 12, 13, 14, 15, 16, 17, 30	1.003	0.276	72.5%
Brandywine Cr. (B34)	3, 4a, 4b, 4c, 4d, 4e, 4f, 18, 19, 20, 21a, 21b, 21c, 22b, 22c, 23, 24, 25, 26, RR	1.966	0.730	62.9%
Total CSO load	-	3.410	1.110	67.4%